

91-58-7-8/27

Exchange of Experience. The Choice of Impulse for the Load Controller
of a Drum Ball Mill.

mill, examples of the variations of controlling time as a
function of the hydraulic resistance are given. There is
1 diagram and 1 graph.

Card 2/2

1. Ball mills--Operation 2. Ball mills--Electrical controls

TALLBMAN, E. I.

Report presented at the Conference on Heat and Transfer,
Minsk, USSR, 9-10 June 61.

PH-2532
34

233. A. I. Vishitsky, T. L. Nersisyan, Diffusion of Charged Particles in the Presence of Recombination
234. Z. L. Panykova, On Heat Transfer in Laminar Flow in the Exit Part of a Tube
235. I. G. Portnov, Solution of Some Problems with Phase Conversions by Operational Calculus
236. L. N. Stenul, Numerical Solution of Some Problems of Motion of a Liquid with Variable Viscosity
237. S. L. Dzhukov, On Conformal Transformation of Radiations Fields in Media
238. Yu. A. Sazonovitch, Calculation of Heating of Rectangular Bodies According to Technological Conditions
239. L. E. Kikot, Dissipativity of Cylindrical Radiating Volume
240. V. I. Zharov, V. M. Mikhlin, P. R. Sulyayev, Theory of Regeneration Heat Exchanger Design
241. E. I. Zhukovskiy, On Calculation Method of Heat Transfer Through the Wall at Change of the Aggregation State of One of Both Heat Agents
242. A. V. Kevderov, Yu. A. Sazonovitch, V. M. Mikhlin, Regularities of Sealing of the Closest Spaces by Radiation and Convection
243. O. L. Shchukin, Peculiarities and Some Results of Thermal Treatment Investigations of Polydispersed Pulverized Materials
244. L. S. Klyachko, Heat and Mass Transfer in Joint Free and Forced Convection
245. Yu. V. Tsaplin, Heat and Mass Transfer at Turbulent Flow of Gases, Data on the Heating Substance Density
246. A. G. Givertz, E. E. Solodov, Influence of Thermal Curvature of the Surface on Heat Transfer Rate of Axisymmetrical Bodies and Tubes
247. A. A. Gerasimov, On the Heat and Mass Transfer Theory at Convective Motion of Liquid
248. V. I. Subbotin, N. D. Dargilov, B. I. Sazonov, Measurements of Temperature Turbulent Pulsations in a Liquid Flow
249. A. A. Ponomarev, On the Theory of Fusion and Burning of a Body (One Step Problem)

TAUEMAN, YE. I.

"Method of estimating heat-exchange through the wall during changes in the state of aggregation of one or both heat conductors."

Report presented at the 1st All-Union Conference on Heat- and Mass- Exchange, Minsk, BSSR, 5-9 June 1961

TAUBMAN, Ye.I.; MAL'TSEV, M.L.

Selecting the optimum parameters of spray drying processes in the production of powdered dried vegetables. Izv.vys.ucheb.zav.; pishch. tekhn. no.3:106-108 '62. (MIRA 15:7)

1. Ukrainskiy nauchno-issledovatel'skiy institut konservnoy promyshlennosti.

(Vegetables--Drying)

TAUEMAN, Ye. I.

Improved method of thermal calculation of evaporating systems.
Izv. vys. ucheb. zav.; pishch. tekhn. no.5:120-126 '62.
(MIRA 15:10)

1. Ukrainskiy nauchno-issledovatel'skiy institut konservnoy
promyshlennosti.

(Evaporating appliances)
(Heat—Transmission)

TAUBMAN, Ye.I., inzh.

Concerning the classification of simulation methods. Izv. vys.
uoheb. zav.; energ. 5 no.7:116-118 J1 '62. (MIRA 15:7)

1. Ukrainskiy nauchno-issledovatel'skiy institut konservnoy
promyshlennosti.
(Models and modelmaking) (Electromechanical analogies)

34661

S/096/62/000/002/005/008
E140/E135

26.5200

AUTHORS: Liberman, I.G., and Taubman, Ye.I.

TITLE: The calculation of convection heat exchange on electronic analogue computers

PERIODICAL: Teploenergetika, ⁹no.2, 1962, 67-70

TEXT: The article describes the solution of an empirical equation for convection heat exchange:

$$y = c x_1^{n_1} \cdot x_2^{n_2} \dots x_k^{n_k} \quad (1)$$

where c is a constant, x_i are variables defining the heat exchange process (heat transfer factor, rate of circulation of heat carrier, geometrical dimensions and form, etc.), and the n_i are real numbers. The problem was set up for the Soviet Analogue Computer M-7 (MN-7) according to the block diagram of Fig.1. Here the blocks in the extreme left-hand column are the sources of the variables x_i , the blocks of the second column are nonlinear elements (function generators) for obtaining the

Card 1/3

The calculation of convection heat... S/096/62/000/002/005/008
E140/E135

logarithm of the variable, the blocks in the third column are multipliers, yielding the products of the respective exponents with the logarithms, the next to the last block is a summation unit, and finally, the output y is taken from a nonlinear unit yielding the antilog. The article further discusses the modification of a piecewise-linear diode function generator to make the functions log, antilog easier to generate. Scale factors and error are discussed. As an example, the heat transfer coefficient in the heating of water in a round pipe (average temperature 80 °C) was calculated on the machine MN-7 as a function of the speed of the water and the pipe diameter. For this simple equation

$$\alpha = 0.023 B \frac{w^{0.8}}{d^{0.2}} = B' \frac{w^{0.8}}{d^{0.2}} \quad (10)$$

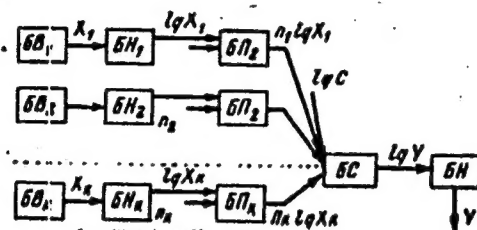
a circuit with eight operational amplifiers was required (and three function generators) with an estimated error not exceeding 3%. The article concludes with a plea for wider use of analogue computers for heat transfer calculations.
Card 2/3

The calculation of convection heat ... S/096/62/000/002/005/008
E140/E135

There are 6 figures, 2 tables and 5 Soviet-bloc references.

ASSOCIATION: PKI Pishcheprom - UkrNIIKP

Fig.1



Card 3/3

MAL'TSEV, M.L.; TAUEMAN, Ye.I.; SHMUKLER, A.S.

Operation conditions of the spray dryer in the processing of
powdered vegetables. Kons.1 ov.prom. 17 no.5:22-24 My '62.
(MIRA 15:5)

1. Ukrainskiy nauchno-issledovatel'skiy institut konservnoy
promyshlennosti.

(Vegetables--Drying)

TAUBMAN, Ye.I.

Transient processes in a multistage evaporation apparatus
for the production of tomato paste. Izv. vys. ucheb. zav.;
pishch. tekhn. no.6:82-87 '63. (MIRA 17:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut konservnoy
promyshlennosti, otdel mekhanizatsii i avtomatizatsii.

MAL'TSEV, M.L.; TAUBMAN, Ye.I.

Determining the size of the drop of the atomized product in spray
drying in the manufacture of powdered vegetables. Kons. i ov.prom.
18 no.3:23-24 Mr '63. (MIRA 16:3)

1. Ukrainskiy nauchno-issledovatel'skiy institut konservnoy
promyshlennosti

(Vegetables--Drying)

TAUBMAN, E. I.

"Application of continuous electronic computers for the calculation of heat exchangers and evaporators."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Ukraine Sci Res Inst of Starch & sugar Industry.

TAUBMAN, Ye.I., inzh.

Simulation of the transient operation of a multistage evaporating system using an electronic computer. Izv. vys. ucheb. zav.; energ. 7 no.5:73-80 My '64. (MIRA 17:7)

1. Ukrainskiy nauchno-issledovatel'skiy institut konserinoy promyshlennosti.

TAUBNER, Robert, tudományos munkatárs

Method for testing the economy of air heating in case of surface (recuperative) air heaters with special regard to low temperature corrosion. Ipari energia 4 no.11;246-251 N '63.

1. Research Institute of Heat Engineering, Budapest.

TAUBWURCEL, Z.

"Intrafactory accounting." p. 91. (ODZIEZ, Vol. 4, no. 3, Mar. 1953, Lodz, Poland)

SO: Monthly List of East European Accessions, L. C., Vol. 3, No. 5, May 1954, Uncl.

1ST AND 2ND SERIES		PROCESSING AND PROPERTIES INDEX		NO. AND 6TH CODES	
TAUC. J.				B 66 k	
<p>SA</p> <p>BASIC PROPERTIES OF DIELECTRIC AERIALS. I-II. J. Taus. Slabopr. Obs., 10, 167-72 (Sept); 189-92 (Oct., 1949) in Czech. The simplest prototype of a dielectric aerial is a dielectric cylinder of finite length. Without to Maxwell's equations, i.e., by merely using the known results of these for the case considered, the reflection coefficient of a guided wave of the symmetrical TM type at the end of the rod is found. The distant radiation field for various types of guided waves is then treated by Huygen's principle. The half-power nodes of the aerial pattern and the gain as a function of cylinder radius and length are determined, the results being applied to the design of dielectric aerial of the simplest kind. The calculation of the directional characteristics, vector potentials and eddy field is given in its strict form, i.e. by solving the Maxwell equations with the appropriate boundary conditions. These yield the radiation spectrum. The results are confirmed by experiment.</p> <p>B. F. Kraus</p>					
<p>ALSO SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>FROM: 151012194</p> <p>TO: 151012194</p> <p>151012194</p>					

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3238. Frequency transformation by means of nonlinear circuit elements. M. Seidl and J. Tauc, Slabopr. Obs., 2, 50-62 (March, 1950) In Czech.																																																																																									
<p>The current methods of calculating non-linear circuits are based on the assumption that in the mathematical solution the non-linearity will appear as a correction term. A new "feedback modulation" method which removes this limitation and which can be applied to non-linear characteristics of any shape is discussed. Frequency division by means of non-linear characteristic s of any shape is discussed. Frequency division by means of non-linear elements is dealt with at length. An example of the application of the general theory to a non-linear two-terminal network is given and the conditions under which frequency division is possible are shown. The method is then applied to six-terminal non-linear networks which are of importance in practice. The calculation of a ring modulator for the transformation of 150 kc/s to 75 kc/s is given and detailed diagrams, including the characteristics of the frequency transformer built according to this theory, are shown.</p>																																																																																									
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S. A. TAUC. J.

Lines, Networks, Waveguides,
Filters

B 66

A

621.392.2 : 621.3.011

274. Wave amplification in a non-linear medium.
J. Tala: *Sloper. Obr.*, 12, 2-7 (Jan., 1951) in
Czech.

In a medium the dielectric constant of which is a function of the electric field a transfer of energy can take place between two electromagnetic waves. The conditions are discussed under which use can be made of this effect for the amplification of a travelling electromagnetic wave by an auxiliary wave of double its frequency travelling in the same non-linear medium. The resulting gain is calculated and it is shown that the phase angle between the two waves in a sufficiently long line becomes automatically such that the energy transfer is a maximum. For a given length of line the amplification in db is $\propto 1/(\text{wave-length})$. The effect can be used for amplification as well as mixing and the advantage over other methods is a relatively low noise level.

H. NOBLE

Jan 52

TAUC, J.

CZECH

537.323 : 537.311.33

6635. The effect of thermal emission of holes on the thermal e.m.f. of *n*-type semiconductors. J. TAUC AND Z. PROSIL. Czech. J. Phys., 3, No. 2, 120-3 (1953) In Russian.

On measuring the thermal e.m.f. of *n*-type semiconductors, it was observed that the character of the dependence on the temperature was different when using a cold point and a heated flat electrode from that when using two flat electrodes. This effect can be explained theoretically by the following conception. Under the point electrode a large temperature gradient is created which, due to the diffusion of holes from the warmer parts, causes a greater concentration of the current carriers in the cooler parts than corresponds to the equilibrium value. The potential barrier under the point prevents the electrons from entering the contact but does not prevent the penetration of the holes. The excess of holes causes an electric voltage analogous to that in a barrier layer cell. On the assumption that most of the temperature gradient occurs at a distance which is small compared to the diffusion distance of the holes, that the temperature gradient between the surface of contact of the tungsten point and the sphere of radius r_0 is negligible and that the concentration of the holes compared to the concentration of *n*-type impurities is small, an expression was derived for the additional voltage ΔU caused by the excess of holes. Within the limits of validity of the derived theory, i.e. for lower temperatures, quantitative agreement was obtained with experiment. For higher temperatures the measured curve always lies below the theoretical. A possible explanation is that the potential barrier loses its efficiency at higher temperatures, a fact supported by measurements made at high temperatures.

BB 41

Inst. Tech. Physics,
Prague

TAVG. 5.

CZECH

537.311.33 : 537.32 : 621.214.7

8274. An explanation of some anomalous thermo-electric phenomena on the surface of transistor materials. J. TAUC. Letter in Czech. *J. Phys.*, 3, 259 (Sept. 1959).

[illegible]

C. A. HOCHSTETTER

CZECH

537.323 : 537.311.33

6636. The theory of the thermal e.m.f. of semiconductors. J. TAUC. Czech. J. Phys., 3, No. 4, 252-303 (1955).

After a discussion of the present theory of the thermal e.m.f. of semiconductors, the theory is extended to non-homogeneous semiconductors. Its relationship to thermodynamics is discussed and it is then applied to the study of the influence of potential barriers. Further cases are discussed in which the velocity or the concentration of electrons does not conform to a state of thermal equilibrium as in the case of diode-type barriers or for injected current carriers. The results are applied to a discussion of the influence of high temperature gradients. The influence of minority current carriers on thermal e.m.f. is systematically treated. Equations are derived and the magnitudes of certain anomalous effects are estimated. Some of these have not yet been experimentally observed.

BB *[initials]* A.

7815, J.

CZECH

537.32

6633. A method for the precise measurement of thermal conduct. of samples with great thermal conductivity. J. TAUC, J. BEDNÁŘ AND A. ABRAHAM. *Letter in Czech J. Phys. A*, No. 4, 314-15 (1955) In *Russians*.

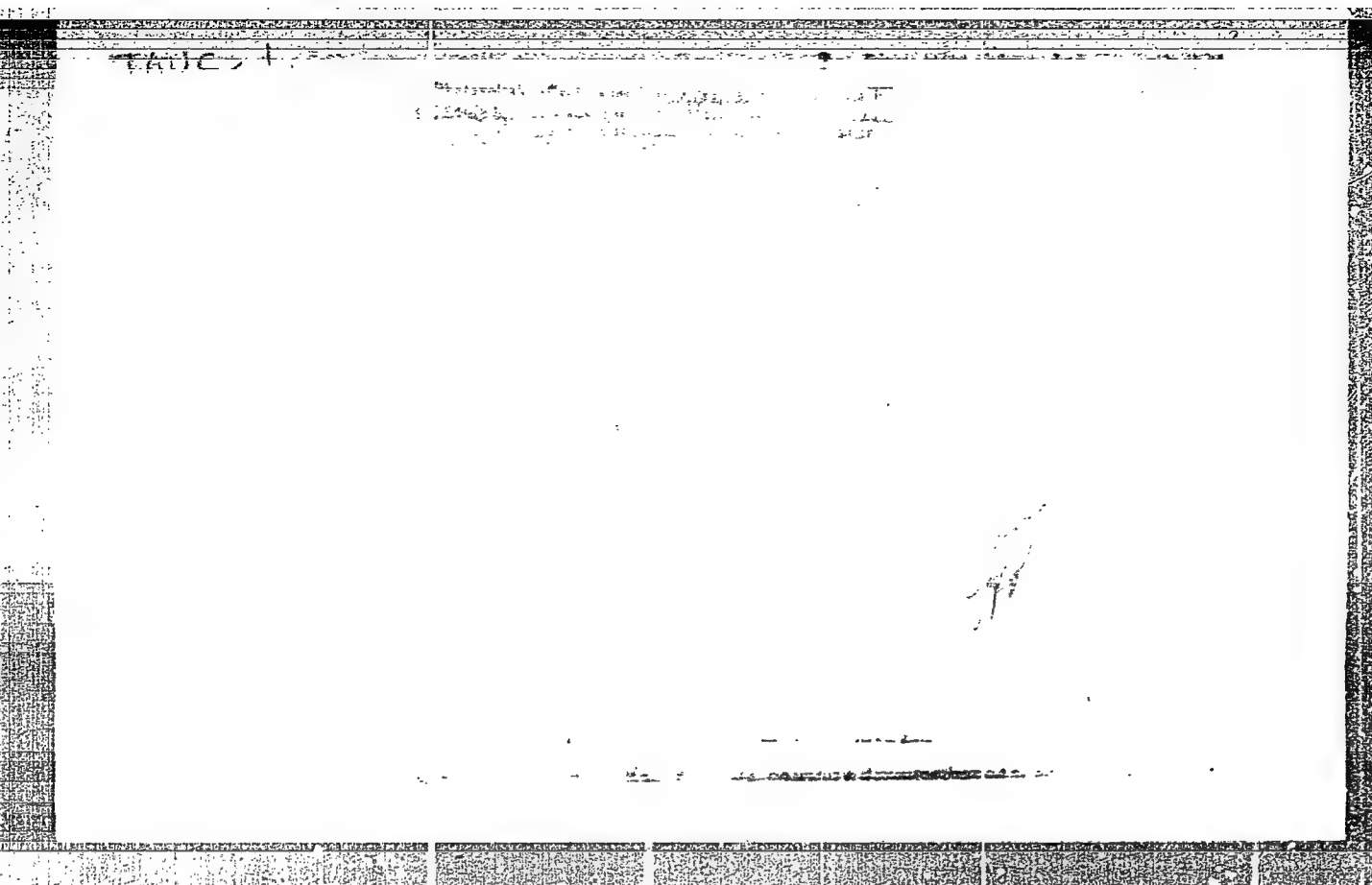
Describes an apparatus in which the two ends of a specimen of the material under investigation (semiconductors are suggested) can be kept at precise and known temperatures. No experimental results.

66 J. M. HURQU.

TALON 3

621.314.53
4643. Germanium rectifiers of the p-n type. I. Titov.
Elektrotech. Obozr., 42, No. 9, 495-8 (1953); in *USSR*,
A review of junction-type Ge rectifiers. The
principle of a p-n junction is briefly explained, and the
properties of a h.v. rectifier described by Petr-pol
[*Phys. Rev.*, 81, 126 (1953)] and those of a General
Electric G-10 power rectifier are discussed. Extrac-
tion and diffusion methods of producing p-n junctions
are briefly mentioned. 2 1. SIDOROV 102

104
104



TAUC, J.

"Method of Photoelectric Line for Internal Photoeffect" P. 99
(CESKO SLOVENSKY CASOPIS PRO FYSIKU Vol. 4, No. 1, Feb. 1954 - Praha, Czech.)

SO: Monthly List of East European Accessions, (EEAL), LC., Vol. 4, No. 4,
April 1955, Uncl.

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CIA-RDP86-00513R001755120009-1

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755120009-1"

TAUC, J.

"Determination of the Optical Activation Energy of Germanium by the Method of Photoelectric Lines." p. 266,
(CESKOSLOVENSKY CASPIŠ PRO FYSIKU, Vol. 4, No. 3, June 1954, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4
No. 5, May 1955, Uncl.

FACE, TAUC, JAN

Figures are given for the optical absorption energy of
 the might be equal to the width of the band of forbidden
 energy values $(0.76 - 4 \times 10^{-4} T \text{ e.v.})$, where T is abs.
 temp.). A $p-n$ junction, prepd. according to Teal, *et al.*
 (Phys. Rev. 81, 837(1951)), is illuminated obliquely with
 a radiator according to Abraham (Eyr. Vist. 2, 14(1954)) at
 298° or 304°K. The black-body radiation is interrupted by
 means of a rotating sector about 1000 times per sec., and
 the resulting potential is measured with a vacuum-tube volt-
 meter, compared to a const. amplitude signal. At 306°K,
 measured with a Pt-PtRh thermocouple, the optical absorp-
 tion energy is $0.02 \pm 0.03 \text{ e.v.}$ Manfred Mannheimer

8-11-51

CZECH

3763. The photo-electric properties of iodine anti-
fluoride. J. JANC AND A. ABRAHAM. Czech J Phys
3, No 8-9, 1959, 194.

The effect of resistance in the formation of a
voltage in mono- or polycrystalline samples of InF_3 .
Due to illumination has been observed the magnitudes
of which increase with decreasing temperatures.

depending on the volume of the sample or at barriers due
to non-homogeneities, and a photovoltaic effect. The
spectral curves were measured with long-wave limits
to 3.8μ at 155°C , 4.7μ at 42°C . It
is shown that these phenomena are caused by the
transition of electrons from the valence-band level
to the conduction band under the influence of light.

The photoelectric effect was found to be
 $U = 2.4 \times 10^{-4} T (\text{eV})$.

TAUC, J.

Zdenek Matyas' Uvod do Kvantove fysiky polovodicu (Introduction to the Quantum Physics of Semiconductors): a book review p. 589.
SALEOPROUDY OBZOR, Vol. 15, No. 12, Dec., 1954, Prague.

SO: Monthly List of East European Accessions, (EEAL), LC, No. 5, No. 6, June, 1956, Uncl.

TAUC, J.

"Dynamics of the electrons in an ideal crystal lattice."

The aim of the paper is to give sufficiently detailed explanation of the conceptions used in modern physics for explaining phenomena which occur in germanium and silicon rectifiers, transistors, phototubes, etc., by J. Tauc.

SO: ELEKTROTECHNICKY OBZOR (Electrical Engineering Review, Czechoslovakia)
Vol. 43, No. 2, Feb., 1954

TAUC, J.

Crystal lattice defects and their effect upon the electric properties of semiconductors. p. 421. ELEKTROTECHNICKY OBZOR. (Ministerstvo strojirenstvi a Ministerstvo paliv a energetiky) Praha. Vol. 43, no. 8, Aug. 1954.

SOURCE: East European Accessions List, Vol. 5, no. 9, September 1956

TAUC, J.

Theory of circumferential photovoltaic phenomenon in semiconductors. p.24
CESKOSLOVENSKY CASOPIS PRO FYSIKU Vol. 5, No. 1, Jan. 1955

SO: Monthly East European Accession List (EEAL), LC, Vol. 4, No. 9, Sept. 1955, Uncl.

2 ✓

properly in the case of a semiconductor with a metal (Mott's theory [39] or at a p-n junction (Schockley [40]) nor the presence of non-rectifying contacts (Hamber's phenomenon, Leshtarenv's theory (1948)) is necessary. The case is considered that the illuminated part of the semiconductor is sufficiently distant from both contacts so that these will not assert themselves; further, it is assumed that there are no localized potential barriers in the semiconductor. Under these conditions a photovoltage is produced in a semiconductor if its conductivity varies throughout its length in such a way that in the dark it is different at the beginning and end of the illuminated part. For this type of "non-barrier and non-contact" photovoltage the name "bulk" photovoltage is proposed. The underlying law of this phenomenon, the general procedure for calculating the photovoltage, an approximation for weak illumination and the dependence on the intensity of illumination are derived and its physical aspects are discussed.

A.

1
BOW

TAUC, J.

TAUC, J. Thermodynamics of "nonbarrier" photovoltaic phenomena barriers.
p. 251.

Vol. 5, no. 3, May 1955
CESKOSLOVENSKY CASOPIS PRO FYSIKU
SCIENCE
Praha, Czechoslovakia

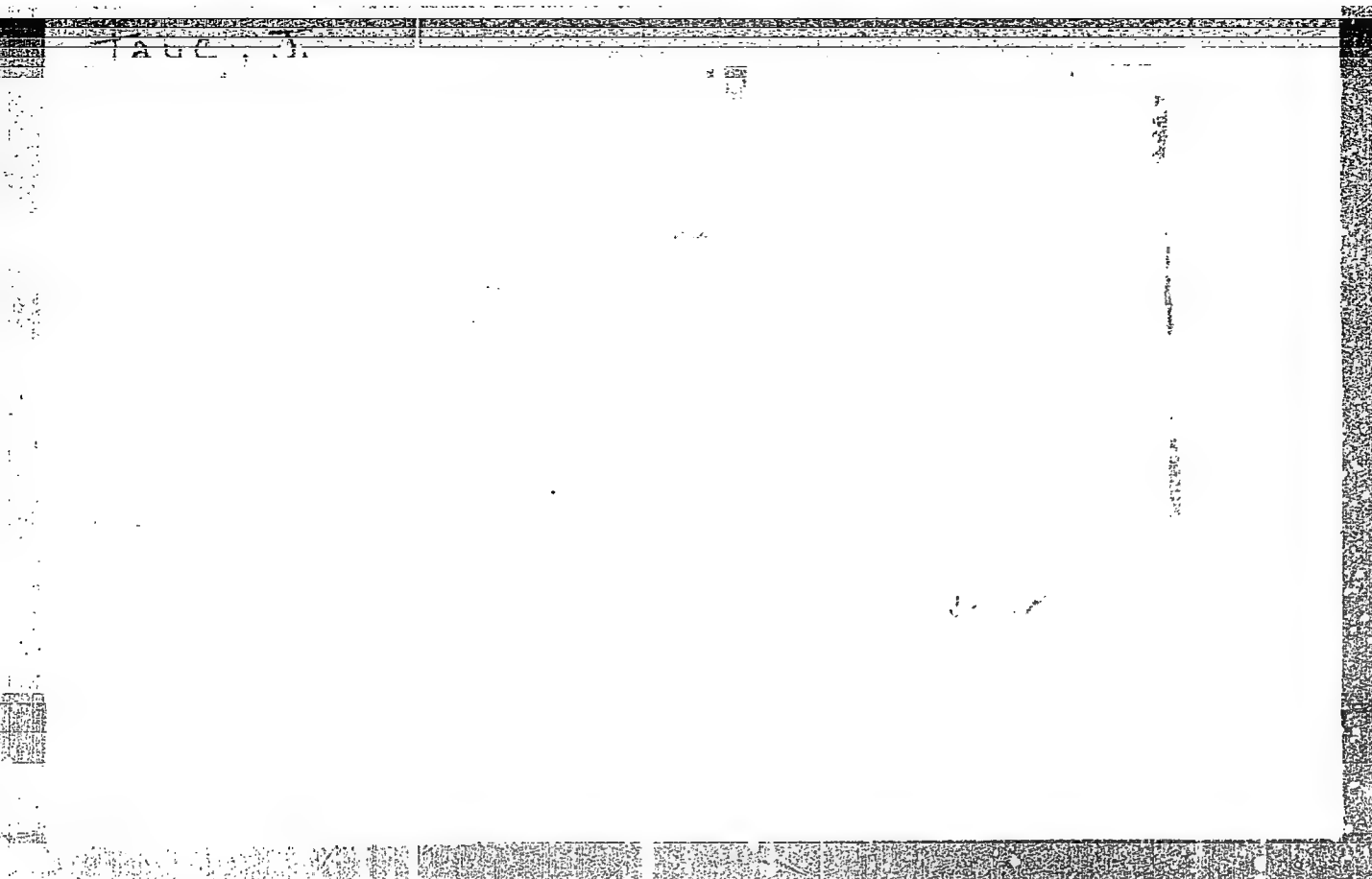
So: East European Accessions, Vol. 5, no. 5, May 1956

TAVE, J.

✓ 537.312.5:537.311.33
5670. The thermodynamics of non-barrier layer
photovoltaic phenomena. J. TAVE. Czech. J. Phys.,
5, No. 3, 399-4 (Aug., 1955).
By using quasi-Fermi levels introduced by Shockley,
which have the meaning of partial chemical potentials
of an assembly of electrons and an assembly of holes,
and an analogy with galvanic cells, an equation was
derived for the photovoltage of a non-barrier-layer
semiconductor photocell on the basis of thermodynamic
laws. For the case that classical statistics
are valid the basic equation leads to the result derived
by kinetic considerations. Attention is thus drawn
to the application of thermodynamics to photovoltaic
phenomena in semiconductors. PB A.

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1953, 2.

Physics of semiconductors. p. 489.

ČESKOSLOVENSKÝ ČASOPIS PRO FYZIKU vol. 5, no. 5, Sept. 1955

Czechoslovakia

so. EAST EUROPEAN ACCESSIONS LIST vol. 5, no. 7 July 1956

TAUC, J.

Thermal photoelectric phenomenon in semi conductors. p. 614

Vol. 5, no. 6, Nov. 1955
CESKOSLOVENSKY CASOPIS PRO FYSIKU
Praha, Czechoslovakia

So: Eastern European Accession Vol. 5, No. 4, 1956

Tauc, Jan

Category : CZECHOSLOVAKIA/Electricity - Semiconductors

G-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4162

Author : Tauc, Jan

Inst : Ustav techn. fys. CSAV, Prague, Czechoslovakia

Title : Electronic Phenomena in Semiconductors with a Temperature Gradient.

Orig Pub : Ceskosl. casop. fys., 1956, 6, No 2, 132-146

Abstract : A theoretical investigation is made of the phenomena involved in the transfer of current carriers as a result of a temperature gradient in semiconductors with two types of current carriers. General equations are introduced for the carrier concentration and for the density of the electric and thermal currents. On the basis of these equations, expressions are obtained for the distribution of the concentration of the electrons and holes in the semiconductor. An expression is derived for the current produced in the presence of a temperature gradient; this current can be interpreted as the emission of negative current carrier from the points with higher temperatures. The dependence of the thermal emf on the temperature gradient is calculated. The phenomenon of temperature rectification is investigated and it is shown that this rectification is insignificant.

Card : 1/1

Tauc, J.

All-Union conference on the physics of semiconductors in Leningrad.
P. 232
CESKOSLOVENSKÝ CASOPIS PRO FYSIKU. (Ceskoslovenska akademie ved.
Ustav technické fyziky) Praha
Vol. 6, no. 2, Mar. 1956

Source: EEAL - LC Vol. 5. No. 10 Oct. 1956

TAUC J.

INDUCED EMF IN A NON-HOMOGENEOUS MAGNETIC FIELD

J. Tauc, 21

British J. Phys., Vol. 6, No. 2, 421-2 (Oct., 1969)

The e.m.f. induced in a non-homogeneous magnetic field is calculated. It is shown that this e.m.f. is composed of two parts — bulk and boundary. Results are given of experiments carried out on iron and antiferromagnetic materials by means of which the conclusions of the theory were verified.

1.2
Y.L.
30x

TAUC, J.; DRAHOKOUPIL, J.; MALKOVSKA, M.

Quantum effect of photoelectric phenomenon in germanium in X-ray radiation. p. 21.
(Ceskoslovensky Casopis Pro Fysiku. Vestnik. Vol. 7, no. 1, 1957.)

SO: Monthly List of East European Accession (EEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

"APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755120009-1

APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755120009-1"

TAUC, J.

International Conference on Semiconductors and Phosphors in Garmisch-Partenkirchen.
p. 111. (Ceskoslovensky Casopis Pro Fysiku. Vestnik. Vol. 7, no. 1, 1957.)

SO: Monthly List of East European Accession (EEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

TAUC JAN

CZECHOSLOVAKIA/Electricity - Semiconductors

G-3

Abs Jour : Ref Zhur - Fizika, No 5, 1958, No 11036

Author : Tauc Jan

Inst : Not Given

Title : Fraction of Thermal Energy Taken from the Surrounding Medium
in the Electroluminescent Energy Radiated from a p-n Junction

Orig Pub : Ceskosl. casop. fys., 1957, 7, No 3, 246-247

Abstract : See Referat; Zhur Fizika, 1958, No 2, 3812

Card : 1/1

Tauc JAN.

CZECHOSLOVAKIA/Electricity - Semiconductors

G-3

Abs Jour : Ref Zhur - Fizika, No 5, 1958, No 11048

Author : Tauc Jan

Inst : Not Given

Title : Remark Concerning the Theory of Anomalous Thermal Electric Phenomenon in Semiconductors

Orig Pub : Chekhosl. fiz. zh., 1957, 7, No 3, 376-377

Abstract : See Referat Zhur Fizika, 1958, No 5, 11047

Card : 1/1

14 uc, J.

AUTHORS: Janc, J. and Abraham, A.
TITLE: The Quantum Efficiency of the Internal Photoelectric Effect in Indium Antimonide (Kvantová účinnost vnitřního fotoelektrického jevu v antimonidu indiu)
PERIODICAL: Československý časopis Pro fyziku, 1958, Nr 6, pp 653 - 657 (Czech)

ABSTRACT: The quantum efficiency η of the photoelectric effect in germanium is approximately unity for all quanta whose energy $h\nu$ lies between ϵ_g and ϵ_i . The quantum efficiency rises above unity (Refs 1, 2) and this is explained by collisions between the fast electrons produced by the absorption of high-energy quanta and electrons in the valence band (Ref 3). Measurements on germanium are carried out by detection of the photoelectric effect on a p-n junction in InSb and cannot be prepared sufficiently reliably in InSb and therefore the photo-conductivity and the photo-electro-magnetic (PEM) effect have been measured in InSb. The PEM effect is proportional to the number of pairs of free carriers, while the photo-conductivity may be influenced by barriers, traps, etc.

The PEM effect decreases with decreasing absorption coefficient k according to Eq 1 (Ref 5). On the other hand, the photo-conductive signal decreases with increasing absorption coefficient according to Eq (2) (Ref 5). The measurement of both effects enables one to find k (Ref 6) and to eliminate its influence on the measurement of η . The monochromatic infra-red illumination used for the measurements was interrupted at a frequency of 63 cps. The intensity of the light was measured with a thermopile and the signal from the sample was amplified with a narrow-band amplifier measured with a valve voltmeter. The sample was mounted in a cryostat in a magnetic field of 500 - 650 gauss. The results quoted were obtained from monocrystalline specimens with 6.4×10^{-3} cm² area and a mobility of electrons at room temperature $\mu = 4.6 \times 10^4$ cm² V⁻¹ sec⁻¹.

The contacts were soldered on with indium. The samples were electrolytically etched (Ref 7). They were 0.05 to 0.2 mm thick and their resistance at room temperature was 3 to 15 Ω . Figure 1 shows the dependence of the quantum efficiency as a function of the energy of the absorbed photons, as measured by the PEM effect at 18°C. Figure 2 shows the same quantity measured at -54°C. The crosses show measurements of the PEM effect, the circles measurements of the photoconductivity. Both graphs are normalised so that the quantum efficiency is unity in the vicinity of the absorption edge (Ref 6). Measurements of photoconductivity could be made at room temperature because the samples were very small and the bolometric effect distorted the results. To eliminate a further possible source of error, the reflection coefficient was also studied. It remained constant over the range of wavelengths investigated. All the measurements showed that the quantum efficiency up to $h\nu \approx 0.47$ eV and started to rise at this wavelength. The rise slowed down and became independent of wavelength, until at a point $h\nu \approx 0.6$ eV it started rising again, though at a slower and apparently constant rate. η_i and η_e were dependent on the sample, particularly

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The Quantum Efficiency of the Internal Photoelectric Effect in Indirect Antimonide CZECH/37-58-6-4/30

on the structure of its surface and on the temperature, but the type of dependence was reproducible. Because the energy of the photons derived from the PM effect practically coincides with those derived from measurements of photo-conductivity, one may safely conclude that indirect photo-conductivity is produced by pairs of holes and electrons, produced by the absorption of quanta, which is shown in the figure. The number of quanta N_q at 1.6 eV , which is a value one would expect for ionization by collision (Refs 9, 10). The energy of the quanta is roughly estimated one-dimensional $E(E)$ diagram for 1.6 eV , which would explain the observed behaviour. Point B_1 occurs when the holes acquire sufficient energy also to produce ionization.

Landberg (Ref 11) has recently suggested that a rise of the quantum efficiency with increasing energy of the absorbed photons might help to resolve certain difficulties. But the found by the authors is in the right direction, but not sufficiently large. There are 4 figures and 11 references, 4 of which are English, 4 Czech, 1 French, 1 German and 1 Soviet.

ASSOCIATION: Ústav technické fyziky ČSAV, Praha (Institute of Technical Physics of the Czech Ac.Soc., Prague)

CZECH/37-59-3-3/29

AUTHORS: Tauc, Jan and Závřetová, Milena

TITLE: Photo-piezoelectric Effect in Semiconductors

PERIODICAL: Československý časopis pro fysiku, 1959, Nr 3, pp 241-245

ABSTRACT: The conditions for the occurrence of a photo-voltaic effect have recently been studied by the author, J. Tauc (Ref 1,8). A basic condition is some inhomogeneity in the semiconductor. In Ref 1, it has been shown that if the width of the forbidden band changes along the illuminated region from E_{Gb} to E_{Gc} , then an e.m.f. given by:


$$U = - \frac{1}{e} \Delta T_1 (E_{Gc} - E_{Gb}) \quad (1)$$

arises $\Delta T_1 = \sigma_1/\sigma - \sigma_0/\sigma_0$ where σ is the total conductivity of the illuminated sample, σ_0 the dark conductivity and σ_1 and σ_{10} relate to the conductivities of the electrons in the conduction band. The width of the forbidden band in a semiconductor depends on pressure (W. Paul and D.M. Warschauer - Refs 2,3) and Price (Ref 4)

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Photo-piezoelectric Effect in Semiconductors CZECH/37-59-3-3/29

has suggested that a photo-voltaic effect might be observed in an inhomogeneously stressed semiconductor. The measurements were carried out on single crystals of n-type germanium ($\rho = 30 \Omega \text{cm}$ at room temperature), p-type germanium ($\rho = 12 \Omega \text{cm}$) and on p-type silicon ($\rho = 570 \Omega \text{cm}$). The samples were cut perpendicular to (111) and their dimensions were $1 \times 1 \times 15 \text{ mm}$. They were etched in CP_4 . The contacts were made with a gallium and zinc eutectic by a method worked out by Trousil. The illuminated area was $0.2 \times 1 \text{ mm}$ and the sample could be moved along the light-spot. The pressure was applied by two edges. The sample was compressed between them and the force was measured. The maximum pressure that could be applied without mechanically damaging the samples was 4000 kg/cm^2 and it acted on an area $0.2 \times 1 \text{ mm}$. Measurements were made either with chopped light and AC amplification or with constant illumination and a galvanometer.



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CZECH/37-59-3-3/29

Photo-piezoelectric Effect in Semiconductors

Because most samples showed a photo-e.m.f. even without pressure, this was first plotted as a function of the location of illumination. The same function was then plotted while pressure was applied to the sample. The photo-piezoelectric e.m.f. was the difference between the two curves. It is plotted, for a sample of p-type silicon, in Figure 2 as a function of position of illumination and in Figure 3 as a function of pressure. The sign of the e.m.f. follows from Eq (1) after inserting:

$$\Delta t_1 = \frac{1}{1 + \mu_1/\mu_2} \cdot \frac{\Delta \sigma}{\sigma}$$

for n-type semiconductors, or:

$$\Delta t_1 = \frac{1}{1 + \mu_2/\mu_1} \cdot \frac{\Delta \sigma}{\sigma}$$

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Photo-piezoelectric Effect in Semiconductors CZECH/37-59-3-3/29

for P-type semiconductors.

Here μ_1 and μ_2 are the mobilities of electrons and holes, respectively, and $\Delta\sigma$ is the change in conductivity due to illumination. Table 1 gives the sign of the e.m.f. for the illuminated end of the sample. This is in agreement with the measurements. The observed effect is of the order of magnitude that was expected theoretically. Eq (1) is proved in an appendix. There are 4 figures, 1 table and 10 references, of which 3 are Czech and 7 English.

ASSOCIATION: Ústav technické fyziky ČSAV, Praha (Institute of Technical Physics, Czechoslovak Ac.Sc., Prague)

Card 4/4



TAUC, JAN

✓ Electron Impact Ionization in semiconductors. J. Tauc
(Czechoslovak Acad. Sci., Prague). *Phys. and Chem. Solids* 8, 219-23(1959).--A review of expts. concerning the
quantum yield of the inner photoelec. effect and its de-
pendence on the photon energy. The theory appropriate
to these phenomena is discussed. J. M. Hwang

Distr: hE3c/hE3d

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2

TAUC, JAN

The quantum efficiency of the internal photoelectric effect in indium antimonide, Jan Tauc and Antonín Abrahám (Czechoslov. Acad. Sci., Prague). Czechoslov. J. Phys. 9, 85-100(1959)(in English).—A method is described for measuring the relative quantum efficiency of the internal photoelectric effect in semiconductors by simultaneously measuring the photomagnetolectric and photoconductive effects. The results of measurements on InSb are given. The quantum efficiency begins to increase if the energy of the photon exceeds 0.47 e.v. at room temp. The quantum efficiency as a function of the energy of the photon is analyzed in terms of impact ionization, and it is shown that a study of the structure of this curve can supply information on the band structure of a semiconductor in the region of high energies of electrons and holes.

A. Kremhelt

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TAUC, J.

Distr: 4E1x(g)/4E2d(b) 2 cys,
 Photovoltaic effect in semiconductors, Jan Tauc
 and Milena Zhvetoř (Czechoslov. Acad. Sci., Prague).
 Czechoslov. J. Phys. 9, 573-7(1959)(in English).—A new
 photovoltaic effect was observed which is caused by the
 nonhomogeneous distribution of pressure in a semiconductor.
 Its origin can be explained by considering the dependence of
 the energy gap on the pressure. A. Kremlitz

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 1-JAJ(MAY)
 1-FJP(S)
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TAUC, J.

Karel Smirous; an obituary. Cs cas fys 11 no.6:556 '61.

1. Ustav technicke fysiky, Ceskoslovenska akademie ved, Praha.

(Smirous, Karel) (Physics)

TAUTS, Ya. [Tauc, Jan], prof.; MIKHAYLOVA, M.P. [translator];
KOLOMIYETS, B.T., red.; TELESNIN, N.L., red.; REZOUKHOVA,
A.G., tekhn. red.

[Photoelectric and thermoelectric effect in semiconductors]
Foto- i termoelektricheskie iavleniia v poluprovodnikakh.
Pod red. B.T.Kolomiitsa. Moskva, Izd-vo inostr. lit-ry,
1962. 250 p. (MIRA 16:5)

(Semiconductors)

TAUC, J.

International Conference on Strong Magnetic Fields. Čs čas fys
12 no. 2:199-201 '62.

1. Ústav fyziky pevných látek, Československá akademie věd, Praha.

TAUC, Jan

The first Czechoslovak semiconductor laser, Vestnik CSAV 72
no.5:600-601 '63

L 21318-66 EWP(t) IJP(c) JD

ACC NR: AP6003658

SOURCE CODE: CZ/0055/65/015/010/0730/0739

AUTHOR: Tauc, J.; Abraham, A.

ORG: Institute of Plasma Physics, Czechoslovak Academy of Sciences, Prague

TITLE: Optical properties and band structure of CdSb

SOURCE: Chekhoslovatskiy fizicheskiy zhurnal, v. 15, no. 10, 1965, 730-739

TOPIC TAGS: cadmium compound, antimonide, photon, valence band, conduction band

ABSTRACT: In continuing the experimental studies of the structure of the absorption edge of cadmium antimonide recently carried out by M. Zavetova (Czech. J. Phys. B 14 1964, 615), the present paper deals with a detailed study of the region of direct transitions adjoining the region of indirect transitions. In the experiment the optical constants of CdSb were determined for photon energies up to 2 eV from reflectivity measurements and by using the Kramer-Kronig dispersion relation. The experimental set-up for the reflectivity measurements is described. Possible locations of the observed direct transitions are found by the application of the selection rules. It is shown how these results, together with those regarding the transport properties of CdSb, can be used to obtain information about the structure of the valence and conduction bands. [The authors thank A. Hruby for the preparation of the samples, M. Silhavy and M. Sulova for help with the measurements and computations, and V. Frei and B. Velicky for many helpful discussions.] Orig art. has: 7 figures, 1 table, and 1 formula.

Card 1/2

L 21318-66

ACC NR: AP6003658

SUB CODE: 20, 11/ BUEN DATE: 07Jun65/ ORIG REF: 008/ OTH REF: 004/ :
SOV REF: 002/

Card 2/2 *JD*

L 36856-66 T/ENT(t)/ETI IJR(c) JD

ACC NR: AP6019274 SOURCE CODE: GE/0030/66/015/002/0627/0637 46

AUTHOR: Tauc, J.; Grigorovici, R.; Vancu, A. 43
B

ORG: [Tauc] Institute of Solid State Physics of the Czechoslovak Academy of Sciences, Prague; [Grigorovici; Vancu] Institute of Physics of the Rumanian Academy of Sciences, Bucharest

TITLE: Optical properties²¹ and electronic structure of amorphous germanium²¹

SOURCE: Physica status solidi, v. 15, no. 2, 1966, 627-637

TOPIC TAGS: amorphous germanium, electronic structure, optic property, energy dependence, optic density

ABSTRACT: The optical constants of amorphous Ge are determined for photon energies from 0.08—1.6 eV. From 0.08—0.5 eV, the absorption is due to k-conserving transitions of holes between the valence bands as in p-type crystals; the spin-orbit splitting is found to be 0.20 in non-annealed, and 0.21 eV in annealed samples. The effective masses of the holes in the three bands are 0.49 m; 0.04 m, and 0.08 m. An absorption band is observed below the main absorption edge (at 300K; the maximum of this band is 0.86 eV); the absorption in this band increases with increasing temperature. This band is considered

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ACC NR: AP6019274

to be due to excitons bound to neutral acceptors, and these are presumably the same ones that play a decisive role in the transport properties and which are considered to be associated with vacancies. The absorption edge has the form: $\omega^2 \epsilon_2 \sim (h\omega - E_g)^2$

($E_g = 0.88$ eV at 300K). This suggests that the optical transitions conserve energy, but not the k vector, and that the densities of states near the band extrema have the same energy dependence as in crystalline Ge. A simple theory describing this situation is proposed, and comparison of it with the experimental results leads to an estimate of the localization of the conduction-band wave functions. For the suggested interpretation of the experimental results, the authors profited very much from discussions with Dr. E. Antoncik and Dr. B. Velicky; fruitful discussions with Dr. L. Banyai and also acknowledged. Orig. art. has: 4 figures and 14 formulas. [Authors' abstract.] [KS]

SUB CODE: 20/ SUBM DATE: 25Feb66/ ORIG REF: 005/ OTH REF: 001

Card 2/2

HANCIL, Jan, ing.; TAUCHMAN, Vlastimil

Operational experience with the superfiner in making trunk
fiberboard. Papir a celulosa 19 no.2:39-40 F'64.

1. Krkonosske papirny, Hostinne.

RIPKA, Otto, MUDr.; TAUER, Emil, MUDr.

Three years of experience in ambulant therapy of sixty
hypertensives with pentamethonium. Vnitr. lek., Brno I no.10:
767-776 Oct 55.

1. Z druhe vnitřni kliniky KU v Praze, prednosta prof. Dr.
A. Vancura II. vnitřni klinika, Praha II. U nemocnice 2.

(HYPERTENSION, therapy

pentamethonium, ambulant treatment.)

(MUSCLE RELAXANTS, ther. use

pentamethonium in hypertension, ambulant treatment.)

TAUER, J.

"The spark plug in a gas engine." p. 21 (MOTORYZACJA, Vol. 8, no. 1, Jan. 1953, Warszawa, Poland)

SC: Monthly List of East European Accessions, Vol. 2, #8, Library of Congress
August, 1953, Uncl.

Z/028/60/000/002/004/005
D253/D304

AUTHOR: Tauer, Jaroslav
TITLE: What do we understand by the term "exosphere"?
PERIODICAL: Pokroky matematiky, fysiky a astronomie, no. 2, 1960,
185-186

TEXT: The author defines the term "exosphere" and lists some characteristics of this outermost layer of the atmosphere. The information contained in this article is compiled from Western sources exclusively. According to Kato and Watanabe (Ref. 1: The Science Reports of the Tohoku University, Fifth Series, Geophysics, Vol. 10, No. 3, 1959 (119-120)), the outermost atmosphere or exosphere is "the interplanetary gas enclosed in a cavity (as proposed by Chapman and Ferraro) which is formed by the relative motion between the earth and the stream of solar corpuscles, or between the earth and the interplanetary matter under the influence of terrestrial rotation." Storey (Ref. 2: Phil. Trans. Roy. Soc., A 246, 1953, (113)) refers to "whistling atmospherics" and estimates ion concentrations in the order of $10^4 - 10^3$ particles/cm³ at altitudes from 1,500 km to several thousands of km.
Card 1/3

What do we understand...

Z/028/60/000/002/004/005
D253/D304

km. These ion concentrations and those listed by other authors are in good agreement with geomagnetic and cosmic observations. The border zone between the exosphere as the outermost region of the atmosphere and interplanetary space is situated at an altitude of 8-9 earth radii. The ion concentration in this zone increases rapidly, which produces a double effect: (1) Inside the border zone, the rotation of the magnetic field causes eddy currents which shield the interplanetary space from influences of the terrestrial magnetic field; (2) From outside the border zone, the kinetic pressure of particles acts; this is equal to the pressure of the magnetic field and thus prevents particles in the interplanetary space from being dragged into rotation with the earth. According to this model, the geomagnetic field is in a sort of cavity, enclosed by induction currents, and its outer limit of influence is changed only by heavy impacts of solar corpuscles during periods of increased activity, e.g., eruptions. These changes then provoke the well-known geomagnetic storms. There are 1 figure and 5 references. The references to the four most recent English-language publications read as follows: Kato, Watanabe: The Science Reports of the Tohoku University, Fifth Series, Geophysics, Vol. 10, No. 3, 1959 (119-120); Obayashi: Report of Ionosphere Research in Japan, Vol. XII, No. 3, 1958 (316); Helliwell: ✓

Card 2/3

What do we understand...

E/028/60/000/002/004/005
D253/D304

Low Frequency Propagation Studies, Part I, AFCRC-TR-56-189, Univ. Stanford, 1958; Siedentoph, Behr: Zs. Astrophys., 32, 1953.

ASSOCIATION: Geofyzikální ústav ČSAV, Praha (Geophysical Institute of the Czechoslovak AS, Prague) ✓

Card 3/3

TAUER, Jaroslav

On methods used for determining the effect of solar eclipse on the geomagnetic field. Studia geophys 8 no.1:72-81 '64.

1. Geophysical Institute, Czechoslovak Academy of Sciences, Praha 4. - Sporilov, Bocni II.

TAUER, Jaroslav

A hydromagnetic model of the solar eclipse effect on the diurnal variation of the geomagnetic field. Studia geophys 8 no. 3:314-316 '64.

1. Institute of Geophysics, Czechoslovak Academy of Sciences,
Prague 4 - Sporilov, Bocni II.

... .. pulse width, frequency, pulse duration,
... .. eclipse, magnetosphere,

"APPROVED FOR RELEASE: 07/16/2001

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APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755120009-1"

TAUER, L.M., inzhener

Continuous operation method of placing trestles for railroad bridges.
Transp.stroi.5 no.6:27-28 Ag'55. (MIRA 8:12)
(Railroad bridges)

TAUER, L. M.

Tauer, L. M.

"The suspended assembly of the span structures of steel bridges. The problem of the economy of suspended assembly of steel bridges." Min Higher Education USSR. Moscow Order of Labor Red Banner Construction Engineering Inst imeni V. V. Kuybyshev. Moscow, 1956. (Dissertation for the Degree of Candidate in Technical Sciences.)

Knizhnaya letopis'
No. 15, 1956. Moscow.

TAUER, I.M.

Erection of the all-welded span of the Novo-Arbatskii bridge.
Transp. stroi. 8 no.8:20-22 Ag '58. (MIRA 11:10)

1. Nachal'nik montazhnogo uchastka mostootryada No.4.
(Moscow--Bridges--Welding)

TAUER, L.M., kand.tekhn.nauk

Floating the span-bridge construction elements over the
Moskva River in Luzhniki. Transp.stroi. 9 no.10:23-27
0 '59. (MIRA 13:2)
(Lushniki--Bridges, Concrete)

TAUER, L.M., kand. tekhn. nauk

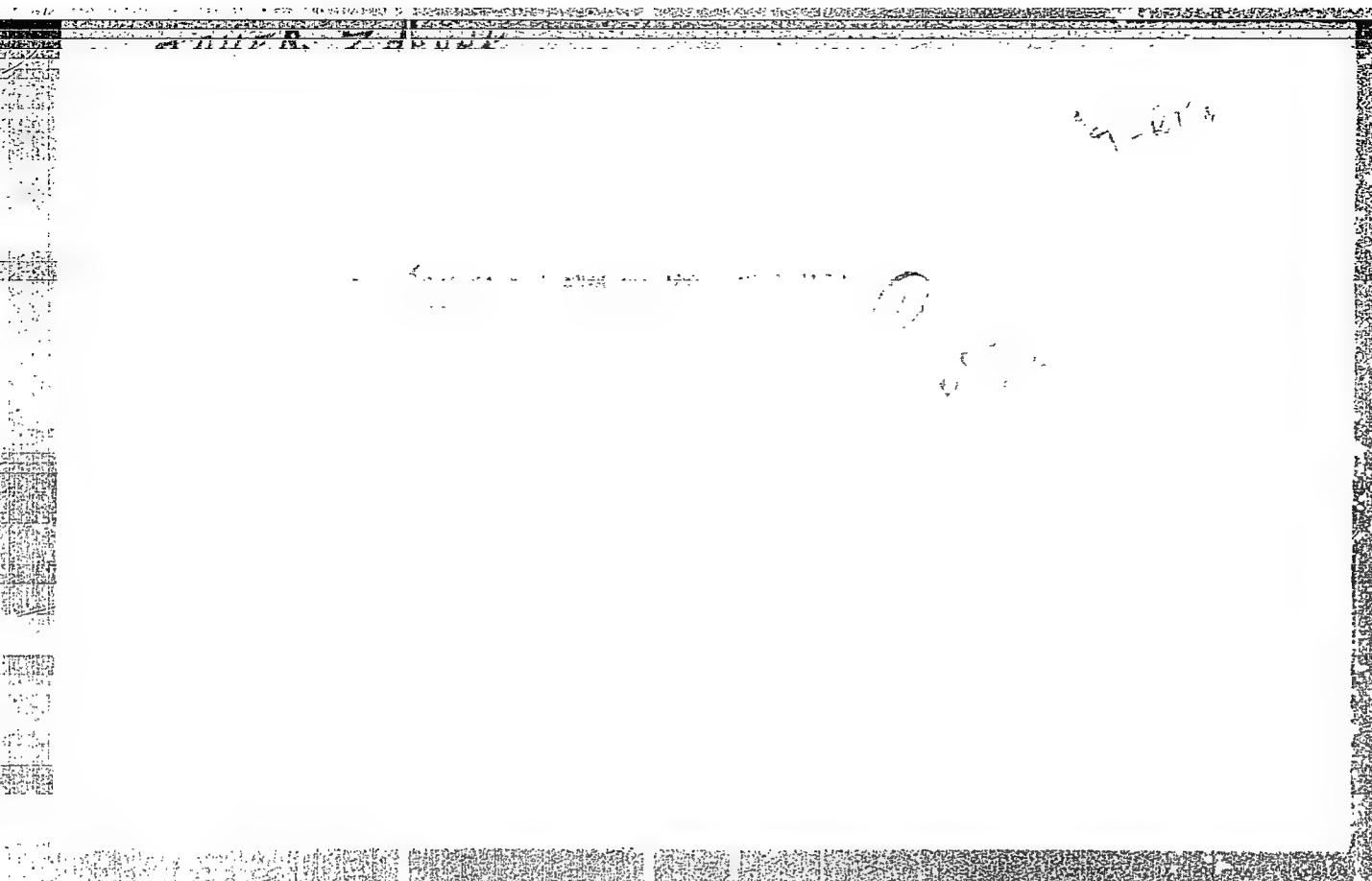
Modern tendencies in bridge construction abroad. Transp.
stroil. 12 no.1:54-58 Ja '62. (MIRA 17:2)

TAUER, L.M., kund.tekhn.nauk

Efficient design of large-span reinforced concrete bridges. Avt.
dor. 25 no.7:25-26 J1 '62. (MIRA 15:8)
(Bridges, Concrete--Design)

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Use of chlorine dioxide. I. Oxidimetric determination of
~~activity of the~~ ~~presence of bromides and~~ ~~iodides~~

...denzing the evolved gas, and dissolving the liquid in
 AcOH to obtain a 10% solution the titre of which was deter-
 mined potentiometrically. The determination was carried out in approx 2-4%
 H₂O₂ with 1 ml of 10% KI in 20 ml of solution. The
 method is suitable for determining *peroxide*. The determi-
 nation is disturbed by all anions reacting with I⁻, by Fe²⁺, As³⁺,
 Cr³⁺, Sn²⁺, Sb³⁺, and the NO₂⁻ and large excess of Cr³⁺.

MA BI

CLENCH

Uses of chlorine dioxide. II. Titration in glacial acetic acid. S. Stramiesky, Z. Tauer, and I. Novotny (Karlova Univ., Prague). *Chem. Listy* **49**, 141-2 (1955); *cf. C.A. Bull.* **78**1k. — ClO_2 is suitable for potentiometric titrations of I^- and for detns. of I^- in the presence of Br^- and Cl^- in anhyd. AcOH . The titer of ClO_2 is detd. with quinol. Potential of the ClO_2/Cl^- system is 0.05M H_2SO_4 and in AcOH is +480 mv. and in 0.1M NaOAc +760 mv. Detn. of I^- was successful even with 8 mg. KI in the presence of 2.5 mg. Cl^- or 3.5 mg. Br^- in 10 ml. AcOH . M. Hudlicky

① Jan

TAUER, Z.

Distr: 4E3d

Reactions of radicals or excited water molecules in traces of ionizing purified. Z. Tauer, F. Duhajek, and J. Bednár (Vojenská akad. A. Zápotočského, Brno, Czech.). Collection Czechoslov. Chem. Commun. 25, 1301-8 (1960). The yields of nitrite were measured in nitrate solns. irradiated by β -radiation. In these solns. nitrite is formed by an indirect action of radicals or excited water molts. and by the direct radiation action on nitrate ions. The effect of pH on nitrite yield is explained by secondary reactions. B. Bednár

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APPROVED FOR RELEASE: 07/16/2001

CIA-RDP86-00513R001755120009-1"

TAUFEL, K.

The training of chemists for the food industry . Tr from the German. p. 217.
(Prumysl Potravin, Vol. 8, No. 4, 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 8, Aug 1957. Uncl.

TAUFEL, K.

Studies on saturated fatty acids under the influence of high energy radiations. Cesk. gastroent. vyz. 16 no.3/4:314-315 Ap '62.

(FATTY ACIDS) (ULTRAVIOLET RAYS)
(RADIATION EFFECTS)

TAUFER, J.

Standard drilling machinery for quick clamping, p. 106

STROJNISKE VESTNIK (Fakuleta za elektroehniko in strojninstvo Univerze v Ljubljani Institut za turbostroje v Ljubljana Drustov strojnih inzenirjev in tehnikov LR Slovenije in Strojna industrija Slovenije) Ljubljana, Yugoslavia. Vol 4, no. 3/4, June 1958

Monthly List of East European Accession EEAI LC, Vol. 8, no. 6, June 1959
Uncla.

TAUFER, J.

TECHNOLOGY

TAUFER, J. Devices for pneumatic clamping. 154

Vol. 4, no. 6, Nov. 1958

Monthly List of East European Accessions (FEAI) LC, Vol. 8, no. 3
March 1959 Unclass

TAUFER, J.

Examples of pneumatic clamping holders. p. 136.

STROJNISKI VESTNIK. (Fakulteta za elektrotehniko in strojninstvo Univerze v Ljubljani, Institut za turbostroje v Ljubljani, Drustvo strojnih inženirjev in tehnikov LR Slovenije in Strojna industrija Slovenije)
Ljubljana, Yugoslavia
Vol. 5, no. 4/5, Aug. 1959

Monthly list of Eastern European Accession Index (EEAI) LC vol. 8, No. 11
November 1959
Uncl.

TAUFER, Janez

Pneumatic drill. Stroj vest 6 no.2:77-78 Mr '60.
(Boring machinery)
(Pneumatic tools)

(EEAI 9:10)

TAUFER, Janez

Pneumatic turning device. Stroj vest 6 no.3:116 M6 '60. (EEAI 10:1)

1. Tovarna avtomobilov Maribor
(Pneumatic machinery) (Turning)

TAUFER, Janez (Maribor)

Equipment for center turning. Stroj vest 7 no. 4-5:114-116 0 61.

1. Tovarna avtomobilov in motorjev, Maribor.

TAUFER, Janez

Clamping devices for the dents in stamping machines. Stroj vest 8
no.4/5:108-110 0 '62.

1. Tovarna avtomobilov in motorjev, Maribor.

TAUPER, Janez

Pneumatic jigs. Stroj vest 10 no.3:77 Je '64.

1. Maribor Automobile and Engine Factory, Maribor.

TAUFROVA, M., MEHATSKY, Z.

Public health personnel in Czechoslovakia. Zdravot. rev. 25:6,
June 50. p. 144-8

CJML 19, 5, Nov., 1950

TAUFROVA, M. ~~MIKE~~

Work of the district physician in the fields of hygiene & epidemiology.
Česk zdravot 6 no.7:355-360 July 58.

1. Vyzkumny ustav organisace zdravotnictvi.

(PUBLIC HEALTH

in Czech., relation of district physician to hyg. &
epidemiol. (Cz))

(EPIDEMIOLOGY

in Czech., relation of district physician (Cz))

(HYGIENE

same)